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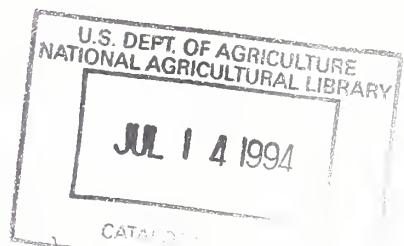
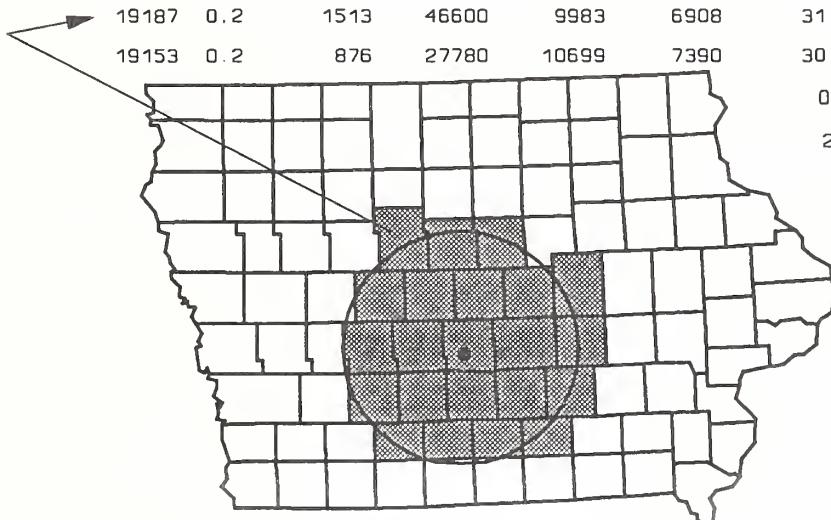
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ZIPFIP

Synopsis of an ERS Database of County and ZIP Code Information

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19049	0.6	495	63490	11021	7673	32.5	0.90
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19079	0.7	57	5130	10359	6557	29.5	1.00
19187	0.2	1513	46600	9983	6908	31.0	0.71
19153	0.2	876	27780	10699	7390	30.0	0.67
						0.0	0.43
						2.5	0.92



ZIPFIP: Synopsis of an ERS Database of County and ZIP Code Information. By Daniel Hellerstein, Danette Woo, Daniel McCollum, and Dennis Donnelly, Economic Research Service and Forest Service, U.S. Department of Agriculture. Staff Report No. AGES 9309.

Abstract

ZIPFIP is a set of databases containing census and locational information organized by ZIP (ZIP code) and FIPS (county) levels and a program by which these databases may be accessed and manipulated. It has several useful features, including editing and displaying data, defining spatial boundaries known as market areas, determining distances between any two sites in the lower 48 States, and aggregating observations. ZIPFIP can extract census information by county or ZIP code and correct information for missing values.

Keywords: ZIPFIP program, database, ZIP codes, FIPS county-level data, economic model.

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ZIPFIP

Synopsis of an ERS Database of County and ZIP Code Information

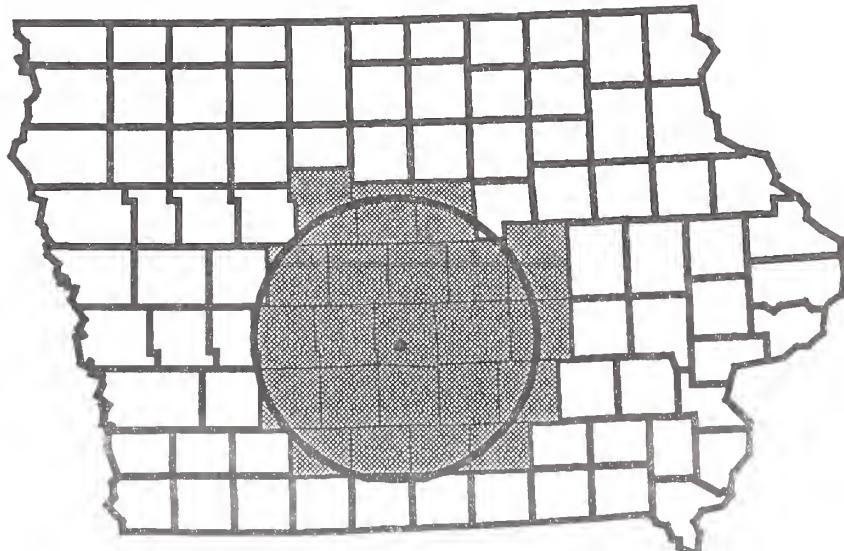
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Introduction

Many economic models are driven by spatially disaggregated data. For example, travel cost models require information on both the origin and the destination of visitors to recreational sites. Another example is a grain market, where a model estimating shipping costs requires detail on the locations of grain silos and marketing centers. To facilitate the construction of such models, economists with the Economic Research Service and the Forest Service, U.S. Department of Agriculture, developed the ZIPFIP software package.

ZIPFIP can access and manipulate information by location. A key feature of ZIPFIP is its ability to create market area profiles. A market area is a geographic area whose boundaries are based on some measure of proximity, typically to some central location. For example, the market area illustrated in figure 1 is defined by a distance (75 miles) surrounding a central location (Des Moines). The profile of a market area is simply a table of information on each of the various "subregions" within the market area's boundaries. In the above example, the

Figure 1
Market area: Counties within 75 miles of Des Moines, IA



counties comprise the subregions. The market area profile can contain a wide variety of information, including latitude, longitude, name, socio-economic information, climate data, and soil characteristics information.

This report outlines the capabilities of ZIPFIP. ZIPFIP users looking for technical details are referred to the ZIPFIP manual or to the online help included in the program.

Advantages and Disadvantages of ZIPFIP

The ZIPFIP program and databases offer a simple, straightforward approach for using census and locational information. ZIPFIP has an easy-to-use, menu-driven look and feel, plus plenty of available online help. ZIPFIP provides a selection of variables available from a variety of more complete databases, such as those available directly from the U.S. Census. In addition, the ZIPFIP program provides several data processing routines useful for manipulating the data. Because ZIPFIP relies on secondary sources for its data and cannot guarantee the accuracy of each data point, its strengths lie in bulk processing of a limited amount of information for a quantity of zones (ZIP or FIPS). ZIPFIP is less appropriate for detail on a single county or ZIP code.

One of the program's most attractive functions is its ability to create market area profiles. A market area might be defined as a list of zones (indicated by ZIP or FIPS codes) within a specified proximity of a selected site or as a set of lists, one for each of several sites. Thus, users can tailor a market area profile to suit their research needs.

Among its disadvantages, ZIPFIP may not match the user friendliness of more sophisticated commercial products. Its interface is more old fashioned and has less of a "Windows" orientation. Due to cost constraints, ZIPFIP cannot guarantee the accuracy of each data point available in its databases. If users require seldomly used variables, they may not find them in ZIPFIP and will need to go to the secondary source. Again, ZIPFIP is less appropriate for detail on a single county or ZIP code.

ZIPFIP Databases

A variety of databases are available for use with ZIPFIP. They contain commonly used information gathered from secondary sources of data. ZIPFIP databases include:

- | | |
|-------------|--|
| ZIPFIP-1980 | Contains county (FIPS) and ZIP code information from 1980. Variables include latitude, longitude, town and county names, and census measures, including population and per capita income from 1969 to 1990. |
| ZIPFIP-1990 | This is an update to ZIPFIP-1980. Several new counties and new measures from the 1990 census are incorporated. ZIPFIP-1990 contains ZIP code information, including latitude, longitude, and place name. |
| AGSTATS | AGSTATS is a collection of ZIP-code and county-level agricultural statistics from the 1978, 1982, and 1987 Census of Agriculture. Measures of the value of land and capital, along with statistics on productivity and the sales of several major crops, are included. |

NRI	NRI is a set of variables from the 1982 National Resources Inventory, including soil type and land cover (aggregated at the county level).
FIPSREGN	This database includes a set of "identifiers" by county. FIPSREGN can be used to cross-reference counties to other geographical units, such as SMSA (standard metropolitan statistical area) and MLRA (major land resource areas).
CLIMSOIL	A set of climate measures (temperature and precipitation) and soil characteristics aggregated at the county level.

The ZIPFIP Program

ZIPFIP provides a number of data processing features, divisible into several categories:

1. Market area creation,
2. Aggregation,
3. Assignment,
4. Data extraction, and
5. Database editing and distance computation.

Market areas are a set of zones defined by the ZIPFIP user. These zones are typically defined by one or more ZIP or FIPS codes. ZIPFIP can produce market areas using several algorithms, including all zones (ZIP or FIPS codes) within a user-specified minimum and maximum distance (and orientation) of a central location, and a list of ZIP codes (or FIPS codes) when given a list of FIPS codes (or State names).

Aggregation can be used to combine observations. An aggregation may combine observations on individuals into ZIP aggregates, or combine ZIP aggregates into a FIPS aggregate. For example, given a list of visitors to a park and the ZIP code of each visitor, ZIPFIP aggregation can derive the total number of visitors from each ZIP code in the area that surrounds the park.

Assignment assigns an observation to a zone, where a zone may be any geographically defined location, such as the geographic centroid of a ZIP code or the boundaries of a county. The primary method used by ZIPFIP to assign observations to a zone is based on finding the zone centroid closest to the observed point. Although a simple approach, an observation might be closer to the centroid of a neighboring zone than to that of the zone in which it actually falls. ZIPFIP, however, can determine the exact zone in which the observation point falls by seeking zone boundaries (for example, county borders) around the observed point.

Data extraction is used to find and display data. A primary use of ZIPFIP is to extract census information for all zones in a market area. ZIPFIP can be used both to create the market area (for example, all counties within 75 miles of Des Moines), and to extract several variables for each zone (for example, county population and per capita income). ZIPFIP can also be used to find town names (or county names) when given ZIP codes (FIPS codes) or to find ZIP codes (or FIPS codes) when given town names (county names).

ZIPFIP incorporates heuristics for cases where data are missing. For example, missing values occur frequently in ZIP data, due to small samples and to "non-existent" ZIP codes. Corrective actions for ZIP data include:

- (1) Using FIPS measures for missing values in the ZIP data, and
- (2) Scaling the ZIP population variable to account for changes in ZIP code boundaries since the 1980 census.

Database editing is used to change values in the ZIPFIP database. With **distance computation**, great circle distances or road distances between a set of user-selected points can be computed. Great circle distance is the shortest line between two points, such as the distance measured "as the crow flies." Road distance, as produced by ZIPFIP, is not the actual distance following roadways between two sites. Rather, it is an approximation determined by both great circle distance and the average circuitry between locations in different States.

ZIPFIP also has some very helpful functions for the general user. For example, the function **PRINTSTATS** will produce an output file of census information relevant to the zone(s) selected by the user. ZIPFIP makes available more than 40 variables from its ZIPFIP-1990 database, giving statistical information on population, income, and education. For several of these variables (such as population and per capita income), time series information from 1969 to 1990 is available at the county level. In addition, PRINTSTATS can deal with canceled ZIP codes (a common problem given the transient nature of ZIP code boundaries) and missing values in a data set. Unlocated ZIP codes may be replaced with numerically close substitutes or left blank. Missing values, when ZIP-code information is requested, can be partially solved by using the value of the same variable from the appropriate FIPS code.

Another feature of ZIPFIP is **TRIPDIST** and **COMPDIST**. TRIPDIST computes the minimum possible mileage for a multiple (maximum of five) stop trip by optimizing until it finds the route with the least mileage. COMPDIST, on the other hand, computes the distance of a trip in the exact order in which the sites are listed.

How to Order ZIPFIP

ZIPFIP can be ordered from ERS-NASS by dialing 1-800-999-6779 (toll free).

Ask for one or more of the following products:

Stock #93014 ZIPFIP Software and ZIPFIP-1990 Database.
Stock #93015a ZIPFIP-1980 Database.
Stock #93015b NRI and the Climate and Soil Databases.
Stock #93015c Agricultural Statistics and FIPS Region Identifiers Databases.

These databases are designed to be used with the ZIPFIP software (stock # 93012). They are shipped on two 3.25", 1.44Mb diskettes. The cost is \$35.00 per product. For non-U.S. addresses, add 25 percent (includes Canada). Charge your purchase to your VISA or MasterCard, or we can bill you (a 10 percent service charge will be added). Or send a check or purchase order (made payable to ERS-NASS) to:

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